THE UNITED STATES METALLIC PACKING COMPANY LIMITED

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BOLTON - - - -	1 Crown Street Telephone No.: 406	CARDIFF -	Salvage Buildings, Clarence Road Telephone No.: 20102
MANCHESTER - -	126 Portland Street Telephone No.: Central 4798		

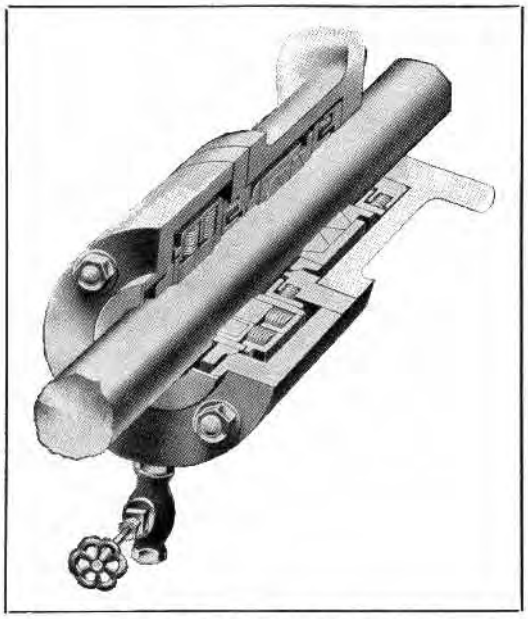
And at

BELFAST, LEITH, HULL, BIRMINGHAM, NOTTINGHAM, BRISTOL, SOUTHAMPTON, BURRY PORT, GRIMSBY, Etc.

Belfast 46242 Leith 37644 Hull C. 7626 Erdington 0013 Nottingham 44491 Bristol 34155 Southampton 72905 Burry Port 189 Grimsby 4853

United States Metallic Packing

AUTOMATIC SELF-ADJUSTING STEAM SETTING



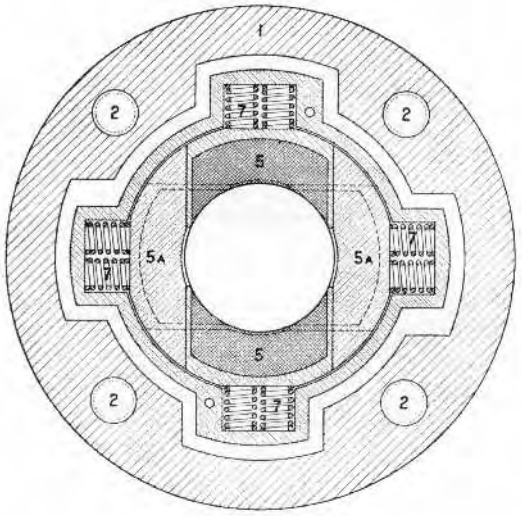
DUPLEX PACKING

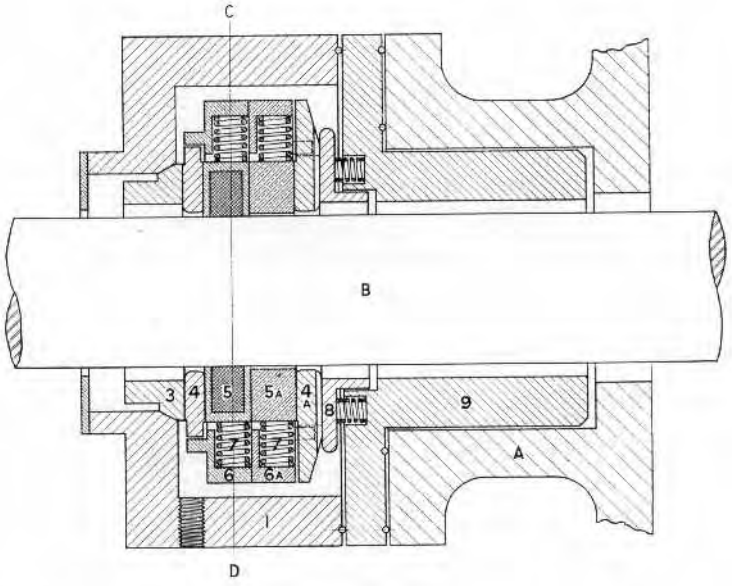
THE UNITED STATES METALLIC PACKING has been designed with a view to **increasing** the **efficiency of Steam Engines** by **decreasing the friction** on the piston or valve rods. It does not act as a brake, but allows the rods **perfect freedom** to move in any direction. Its **durability** is very great. Some packings have given **over twenty-seven years' service** without renewal. It is the most widely used of any automatic self-adjusting Metallic Packing in the world. It has been adopted by the principal Governments, Industrial and Municipal concerns, and the most important Railway and Steamship Companies. It is working perfectly with steam pressures of 300 lbs. per sq. inch, and with steam superheated to 700 degrees Fahrenheit.

Leaflet A400

THE UNITED STATES METALLIC PACKING

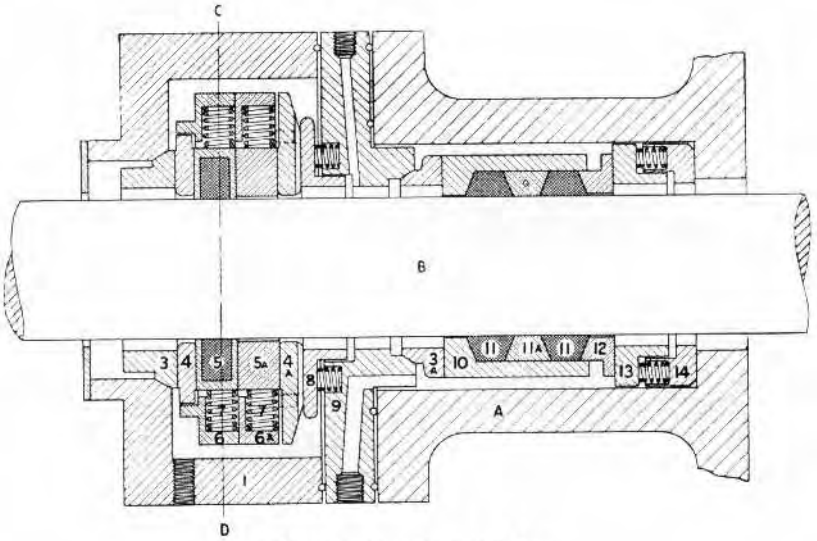
BLOCK PACKING
Horizontal Type



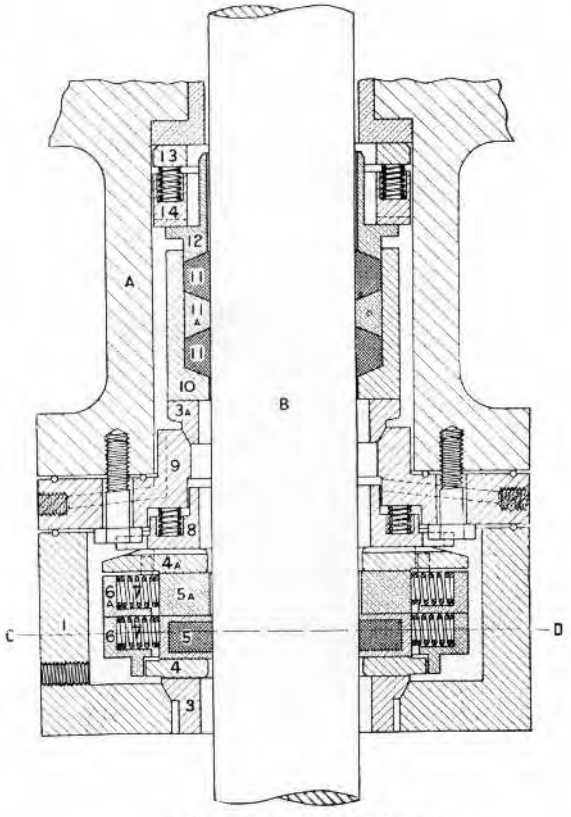


DESCRIPTION OF COMPONENT PARTS

A. Stuffing Box.
B. Piston Rod.
1. Packing Case.
2. Stud Bolts.
3. Ball Joint.
3a. Duplex Ball Joint.
4. Ball Ring Sliding Plate.
4a. Follower Sliding Plate.
5. Packing Blocks.
5a. Guide Blocks.
6 & 6a. Horn Rings.
7. Block Springs.
8. Spring Cover Plate.
9. Backplate or Follower Bush.
10. Duplex Vibrating Cup.
11. Duplex Cone Rings.
11a. Duplex Middle Ring.
12. Duplex Follower.
13. Duplex Spring Cover.
14. Duplex Spring Holder.



DUPLEX PACKING
Horizontal Type

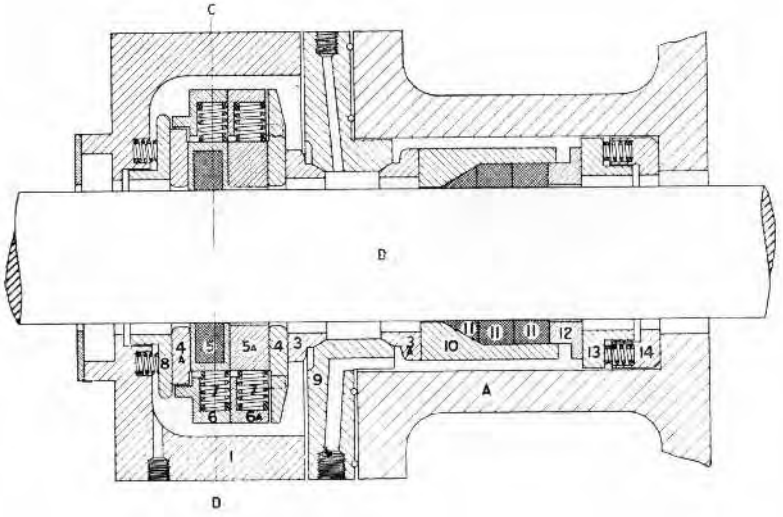


DUPLEX PACKING
Vertical Type

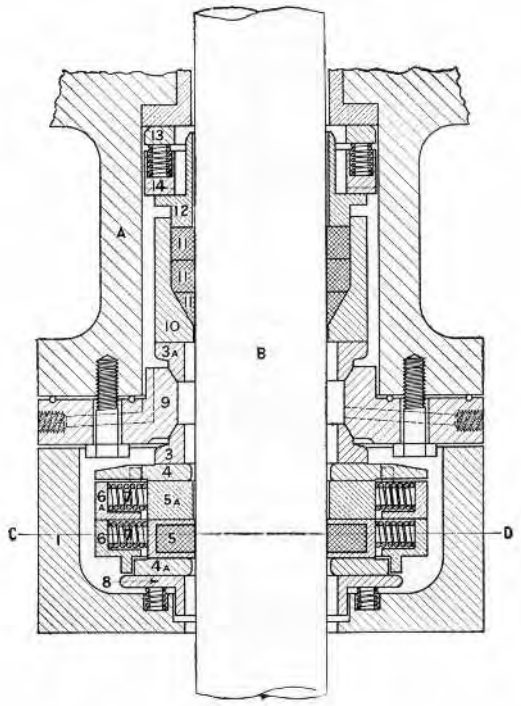
THE UNITED STATES METALLIC PACKING

ATMOSPHERIC DUPLEX PACKING

Horizontal Type



Vertical Type



(For description of **Component Parts** see opposite page)

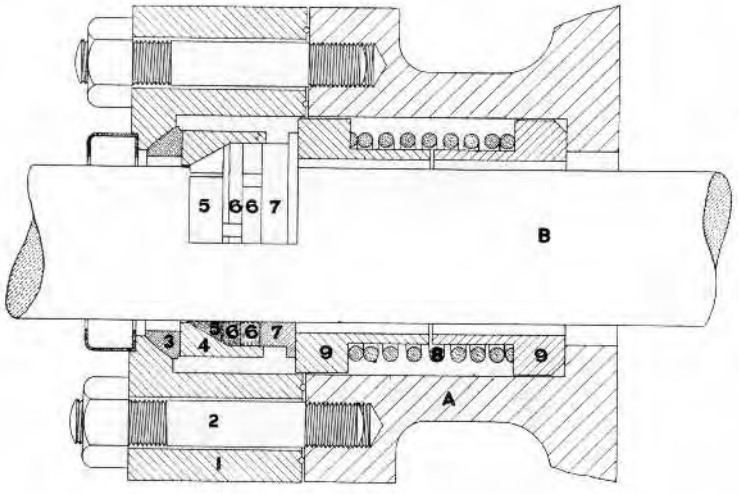
BLOCK PACKING is intended for use with **medium** and **low** pressures. It consists of eight blocks, which are held in strong rings (6 & 6a), having pockets or horns holdings springs (7). The packing blocks are put together in sections, four blocks to a section. Each section is therefore composed of two working blocks, babbitt lined (5) and two guide blocks (5a). The joints between the blocks in one section are at right angles to those in the other section, thus breaking joint. The blocks are regulated by springs, which merely keep the parts in place when the steam is shut off, as when steam is applied the steam pressure regulates or sets the packing. A ball joint (3) on one side, and follower (9) with springs on the other, give the packing **free play** and **keep it steam-tight without regard to the vibration of the rod.** The spring cover plate (8) transmits the longitudinal pressure of the follower springs, but relieves the latter of all shearing strain, and effectually shields the rod from damage, should any of the springs break.

DUPLEX PACKING is designed for use with **high pressures.** It consists of a **block packing** as described above used in conjunction with a **cone packing,** which includes a set of anti-friction metal rings (11 & 11a) placed in a vibrating cup (10), the interior of which is partly conical. The duplex follower ring (12) holds the cone rings in position, and transmits to the latter the pressure from the duplex follower springs, which are held in the ring (14) and protected by the spring cover (13). In this arrangement the inner cone packing checks the steam pressure, and the outer block packing is thus assisted, and the escape of steam absolutely prevented.

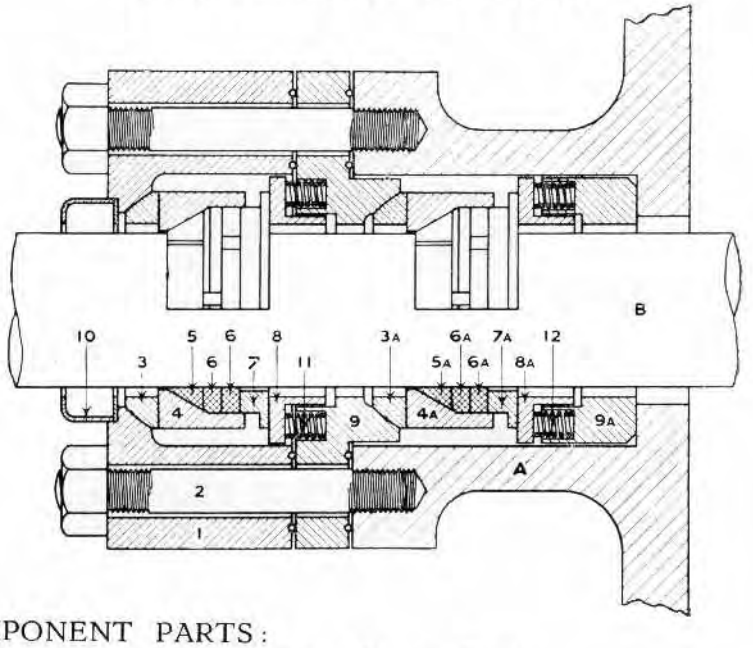
ATMOSPHERIC DUPLEX PACKING.—For use on **Low-Pressure Condensing Cylinders.** It consists like the Duplex Packing, of two parts, but with this difference. In the Duplex Packing both parts are steam setting, and operate in the same direction to prevent the escape of steam. In the **Atmospheric Packing** the parts are placed **face** to **face** and act in opposite directions. The inner packing only is steam setting and prevents the escape of steam. The outer part is open to and set by the atmosphere. When there is a vacuum in the cylinder, the atmospheric pressure is actually used to tighten the outer packing and automatically prevent the passage of air, which would impair the vacuum. This valuable arrangement is found only in the United States Metallic Packing.

THE UNITED STATES METALLIC PACKING

SINGLE CONE PACKING
Locomotive Type



DOUBLE CONE PACKING

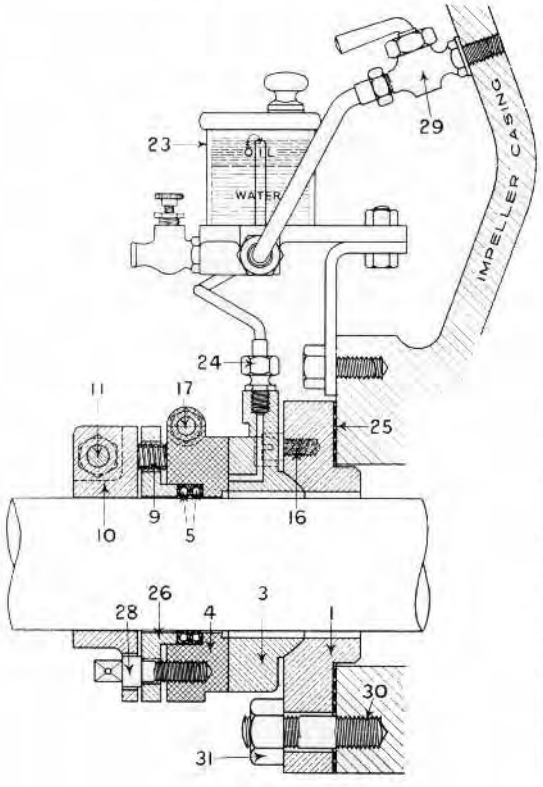


DESCRIPTION OF COMPONENT PARTS:

A. Stuffing Box.
B. Piston Rod.
1. Packing Case.
2. Stud Bolts.
3. Ball Joint.
4. Vibrating Cup.
5 & 6. Babbitt Rings.
7. Follower.
8. Spring.
9. Spring Bushes.

1. Packing Case.
2. Stud Bolts.
3. Ball Joint.
3a. Duplex Ball Joint.
4. Vibrating Cup.
4a. Duplex Vibrating Cup.
5 & 6. Packing Rings.
5a & 6a. Duplex Packing Rings.
7. Follower.
7a. Duplex Follower.

8. Outer Spring Cover.
8a. Duplex Spring Cover.
9. Back Plate.
9a. Duplex Spring Holder.
10. Swab Cup.
11. Outer Springs.
12. Duplex Springs.



In the above packings, three anti-friction metal rings (5 & 6), are placed in a vibrating cup (4), the interior of which is partly conical. The vibrating cup rests against a ball and socket ring (3), the whole being kept in place by a follower (7) with springs, the latter pressing the ball-ring (3) against the head of the case (1) or back plate, and forming there a steam-tight joint. It will be noticed that by its construction the packing may have a direct sliding or rocking motion and may combine both at once. Thus the packing never binds the rod, but follows its vibratory movements.

PATENT ROTARY PACKING FOR CENTRIFUGAL PUMPS

The United States Patent Rotary Packing has been running on hundreds of steamships for several years with very successful results. **There is no wear on the shaft.** The **friction is reduced to a minimum** and the **efficiency of the pump is increased.** A clamp (10) is secured to the shaft by clamp bolts (11) and by means of the driving pins (28) causes the rotation of the cup (4) and packing rings (5) with the shaft. The cup and rings (4 & 5) are, however, free to slide along the shaft in response to the pressure of the follower springs (9), thus keeping the cup in close contact with the non-rotating ball joint (3), which allows for any slight mal-alignment. **The Automatic Pressure Lubricator** (23), operated by the water pressure in pump casing, ensures regular lubrication at the only frictional point, when the pump is running. All parts, including springs, are of non-corrodible metal. The packings are made entirely in halves when necessary.